Paper No. 23

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOHN L. BECK, JEFFREY F. BOIGENZAHN, DARRELL E. BRATVOLD, CHARLES A. BROWN, LUKE A. COSSETTE, DALE C. GOEKE, MICHAEL S. GOOD, DALE E. GOODMAN, RICHARD E. LAGERGREN, GREGORY A. LYONS,
BRIAN L. RAPPEL, JAMES M. RIGOTTI, DANIEL C. STUCKY, LYLE R. TUFTY, and HERMAN R. WENDT

Appeal No. 1998-1465
Application No. 08/445,926

ON BRIEF

Before HAIRSTON, FLEMING, and GROSS, Administrative Patent Judges.

GROSS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1, 2, 4, 6, and 8 through 10. Claims 3, 5, 7, 11 through 15, and 26 through 34 have been canceled, and claims 16 through 25 have been withdrawn from consideration as being drawn to a nonelected invention.

Appellants' invention relates to a disk drive structure having an enclosure formed of a base casting and a cover casting with mating surfaces along the length of the disk drive. The base casting includes die-cast generated zero draft geometries for mounting the spindle motor shaft and the actuator bearing shaft. The cover casting includes an integral diffusion path and an integral channel for controlling airflow to and from a breather filter, respectively. Claim 1 is illustrative of the claimed invention, and it reads as follows:

1. A data storage disk drive comprising:

at least one disk surface mounted for rotation about a spindle motor shaft;

at least one data transducer head for reading and/or writing data to respective disk surfaces;

an actuator for moving said at least one data transducer head across respective disk surfaces; said actuator including an actuator bearing shaft; and

a device enclosure for enclosing said at least one disk surface, said at least one data transducer head and said actuator, said device enclosure defined by a base casting and a cover casting, each of said base casting and said cover casting having a mating surface along the length of the data storage disk drive, said base casting including die-cast generated predetermined zero draft geometries for mounting said spindle motor shaft and said actuator bearing shaft at spaced apart locations;

said at least one disk surface mounted on said spindle motor shaft and said actuator being removably positioned for independent assembly and removal with said base casting of the disk drive; and

a breather filter and wherein said cover casting of said device enclosure includes an integral diffusion path for controlling airflow to said breather filter and an integral channel for controlling airflow from said breather filter to a predetermined region within said enclosure, said predetermined region located near said spindle motor shaft.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Roddy et al. (Roddy)	3,900,234	Aug. 19, 1975
Moon et al. (Moon)	4,772,974	Sep. 20, 1988

Claims 1, 2, 4, 6, and 8 through 10 stand rejected under 35 U.S.C. § 103 as being unpatentable over Moon in view of Roddy.

Reference is made to the Examiner's Answer (Paper No. 15, mailed August 4, 1997) for the examiner's complete reasoning in support of the rejection, and to appellants' Brief (Paper No. 14, filed July 7, 1997) and Reply Brief (Paper No. 16, filed October 7, 1997) for appellants' arguments thereagainst.

OPINION

As a preliminary matter, we note that appellants indicate on page 9 of the Brief that the claims do not stand or fall together. Appellants argue the claims in the following four groups: (1) claims 1, 6, and 10; (2) claim 2; (3) claim 4; and (4) claims 8 and 9. We will treat the claims according to the four groups as set forth by appellants, with claims 1, 2, 4, and 8, respectively, as representative.

We have carefully considered the claims, the applied prior art references, and the respective positions articulated by appellants and the examiner. As a consequence of our review, we will affirm the obviousness rejection of claims 1, 4, 6, and 8 through 10, but reverse the obviousness rejection of claim 2.

Appellants argue (Brief, pages 11-12) that three elements of claim 1 are lacking from Moon and (Brief, pages 12-13) that neither Moon nor Roddy suggests combining the two references to modify Moon. The three limitations discussed are: (1) an enclosure defined by a base casting and a cover casting that have a mating surface along the length of the data storage disk drive, (2) the base casting including die-cast generated predetermined zero draft geometries for mounting the spindle

motor shaft and the actuator bearing shaft at spaced apart locations, and (3) the cover casting including an integral diffusion path for controlling airflow to the breather filter and an integral channel for controlling airflow from the breather filter to a predetermined region within the enclosure.

Regarding the first limitation enumerated above, two castings which mate along the length of the disk drive, Moon discloses (column 6, lines 6-10 and 18-19) a disk drive enclosure formed of two metal castings, housing **12** and cover **14**. Although Moon does not specify that the cover is formed as a metal casting, one of ordinary skill in the art would expect to form both the housing and the cover the same way and of the same material for proper mating. The level of the skilled artisan should not be underestimated. See In re Sovish, 769 F.2d 738, 743, 226 USPQ 771, 774 (Fed. Cir. 1985). Further, Moon illustrates in Figure 1 that the two portions of the enclosure mate along the periphery of the housing, which includes a surface that extends along the length of the housing. Therefore, Moon does disclose the first limitation alleged to be missing therefrom.

As to the second element discussed by appellants, involving the zero draft geometries, we agree that Moon includes no such disclosure. However, the examiner has relied upon the teachings of Roddy for the reason why the skilled artisan would have modified Moon to meet the claim limitation. Specifically, Roddy teaches (column 1, lines 63-66) "eliminat[ing] the need for a machined opening in a die cast bearing support structure by providing an opening in the bearing support structure effectively having zero draft." Further, Roddy states (column 2, lines 3-4) that an object of the invention is to lower the cost of a bearing support structure. In addition, Roddy suggests (column 1, lines 11-13) that the invention applies to other die cast press fit structures. Since Moon uses metal castings, in view of the combined teachings of Moon and Roddy, one of ordinary skill in the art would have found it obvious to utilize Roddy's zero draft geometries with Moon's metal castings for mounting the spindle motor shaft and actuator bearing shaft to eliminate the need for a machined opening and reduce the cost.

Lastly, regarding the integral diffusion path and channel, although we disagree with the examiner's first line

of reasoning (Answer, pages 4-5), we will affirm the rejection based upon the examiner's alternative line of reasoning (Answer, page 5). The examiner first interprets the small holes in element **17** in Figure 1 of Moon as both an integral diffusion path to and also an integral channel from the breather filter. Thus, the examiner considers air to flow into and back out of the device through the filter. However, that would mean that the air leaving the device would be filtered, which is counterintuitive. Furthermore, Moon provides ports **18** to purge the interior of dust particles. Accordingly, we interpret Moon as having air flow into the disk drive through the filter and then out through ports **18**. Consequently, the small holes fail to meet the claim language of "an integral diffusion path for controlling airflow to said breather filter."

On the other hand, as pointed out by the examiner, the breather filter is actually the circular mesh shown above element **17** in Figure 1 of Moon. Numeral **17** points to the cylindrical opening in cover **14** into which the breather filter fits. The bottom of the opening has small holes therethrough. Thus, once the filter is in place, there will be a portion of

the large opening above the filter, through which air flows into the filter, and small holes below the filter, through which air flows from the filter into the enclosure. Both the large opening and the smaller holes are integral with cover **14**. Accordingly, all three of the limitations contested by appellants are taught by the combined disclosures of Moon and Roddy. Consequently, we will affirm the rejection of claim 1 and the claims grouped therewith, claims 6 and 10.

For claims 4 and 8, the examiner took Official notice that the additional claimed elements are notoriously old and well known in the art. As appellants' argument for each of claims 4 and 8 is that neither reference discloses the limitations recited in the claim, and fails to address the actual rejection, we will affirm the rejection of claims 4, 8, and 9 (which is grouped with claim 8).

Regarding claim 2, the examiner asserts (Answer, page 4) that Moon discloses first and second pole piece magnet assemblies, but never addresses whether they are mounted by base casting die-cast generated zero draft geometries. Figure 1 of Moon shows magnet assemblies **352** and **356** as being mounted to the base and cover castings, respectively, with screws.

The screws pass through magnet plates carrying the magnet assemblies and are inserted into projections from the castings. Thus, we find no disclosure in Moon of the magnet assemblies being mounted by base casting zero draft geometries. Further, the examiner has failed to provide us with any line of reasoning, no less a convincing line of reasoning, as to why the skilled artisan would have modified Moon to have the pole-piece magnet assemblies mounted by base casting die-cast generated zero draft geometries. Accordingly, we cannot sustain the rejection of claim 2 over Moon in view of Roddy.

CONCLUSION

The decision of the examiner rejecting claims 1, 2, 4, 6, and 8 through 10 under 35 U.S.C. § 103 is reversed with respect to claim 2 and affirmed with respect to the remaining claims. Accordingly, the examiner's decision is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

KENNETH W. HAIRSTON Administrative Patent Judge	)	
MICHAEL R. FLEMING Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
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